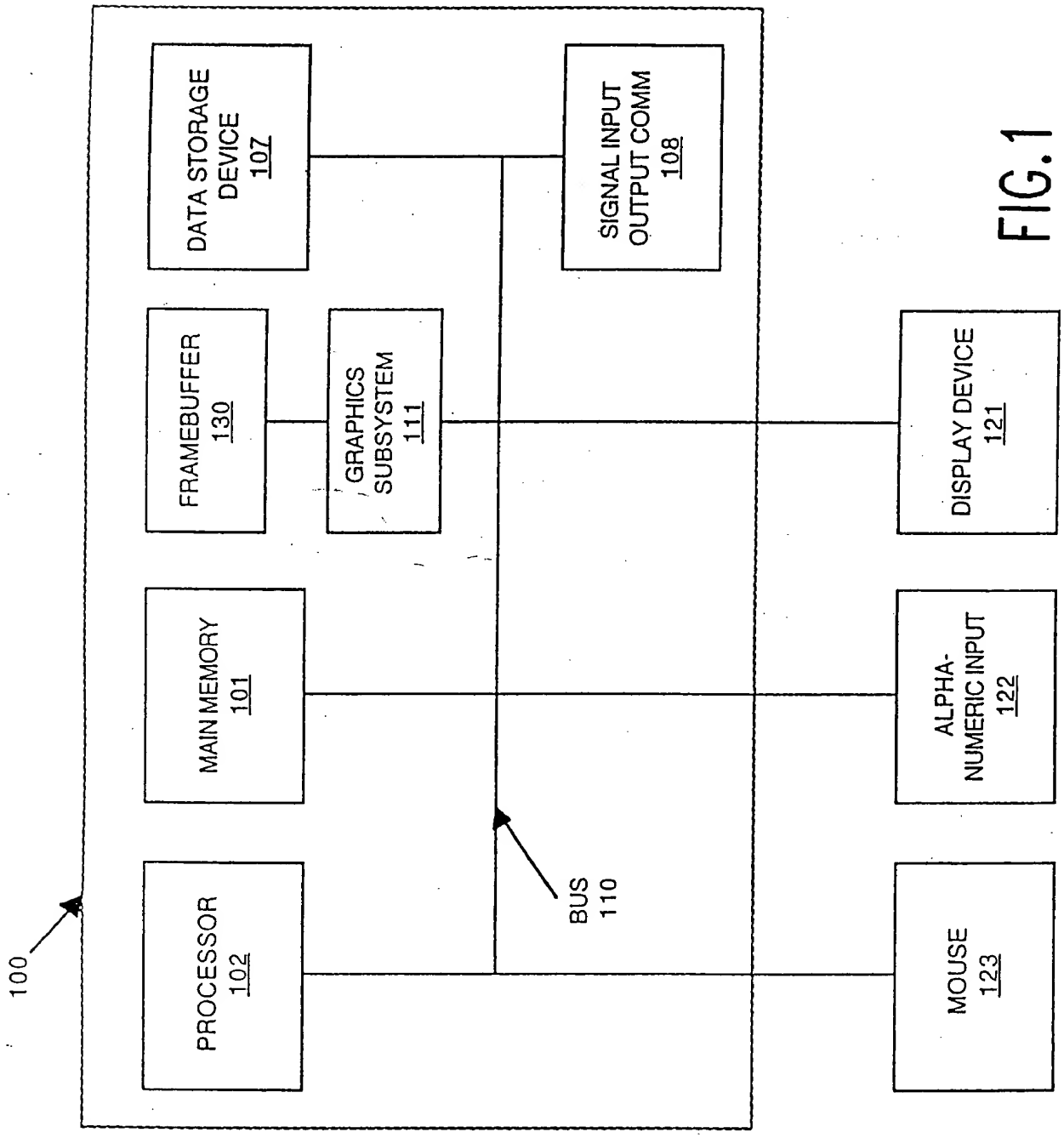


FIG. 1

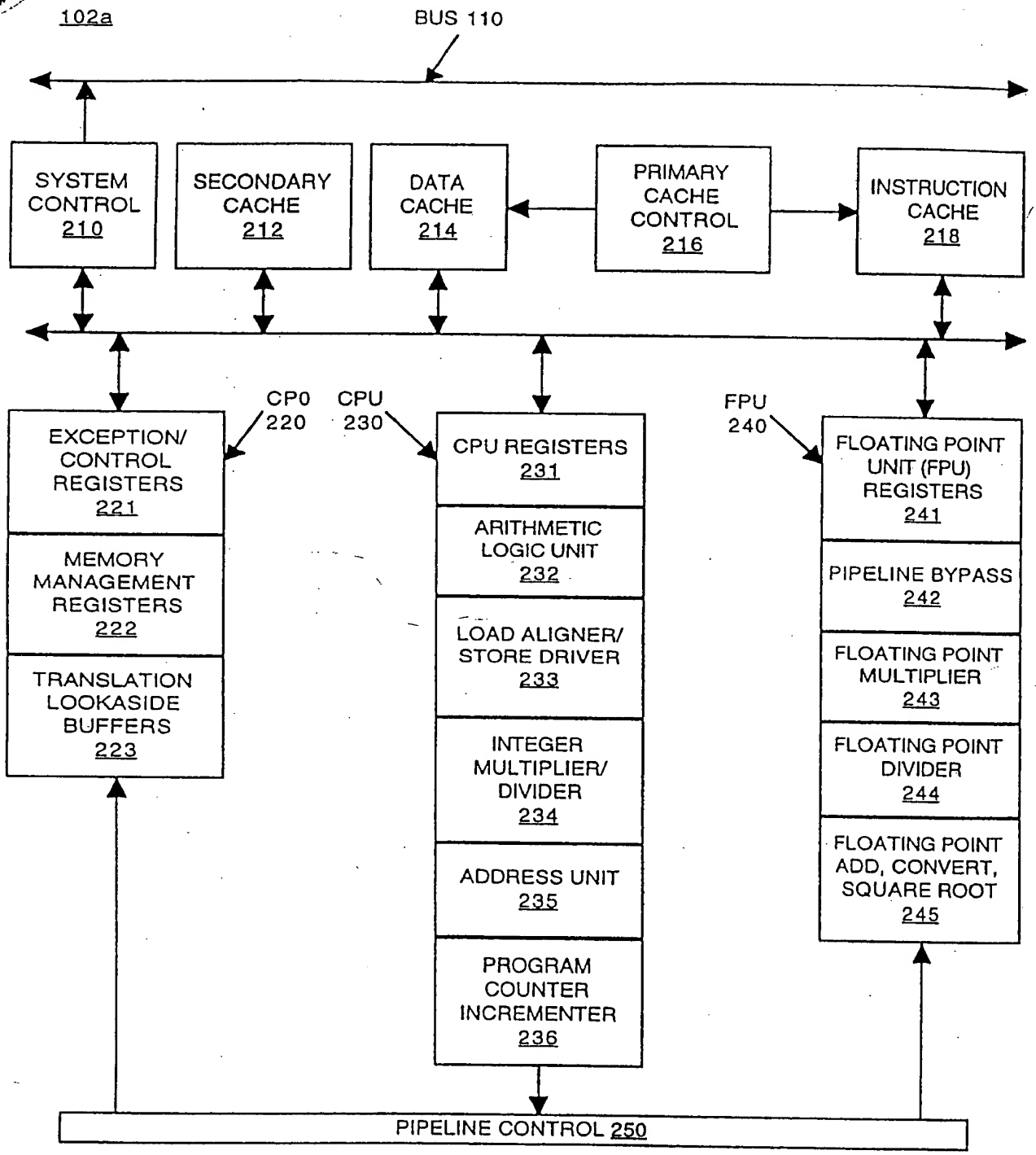


FIG.2A

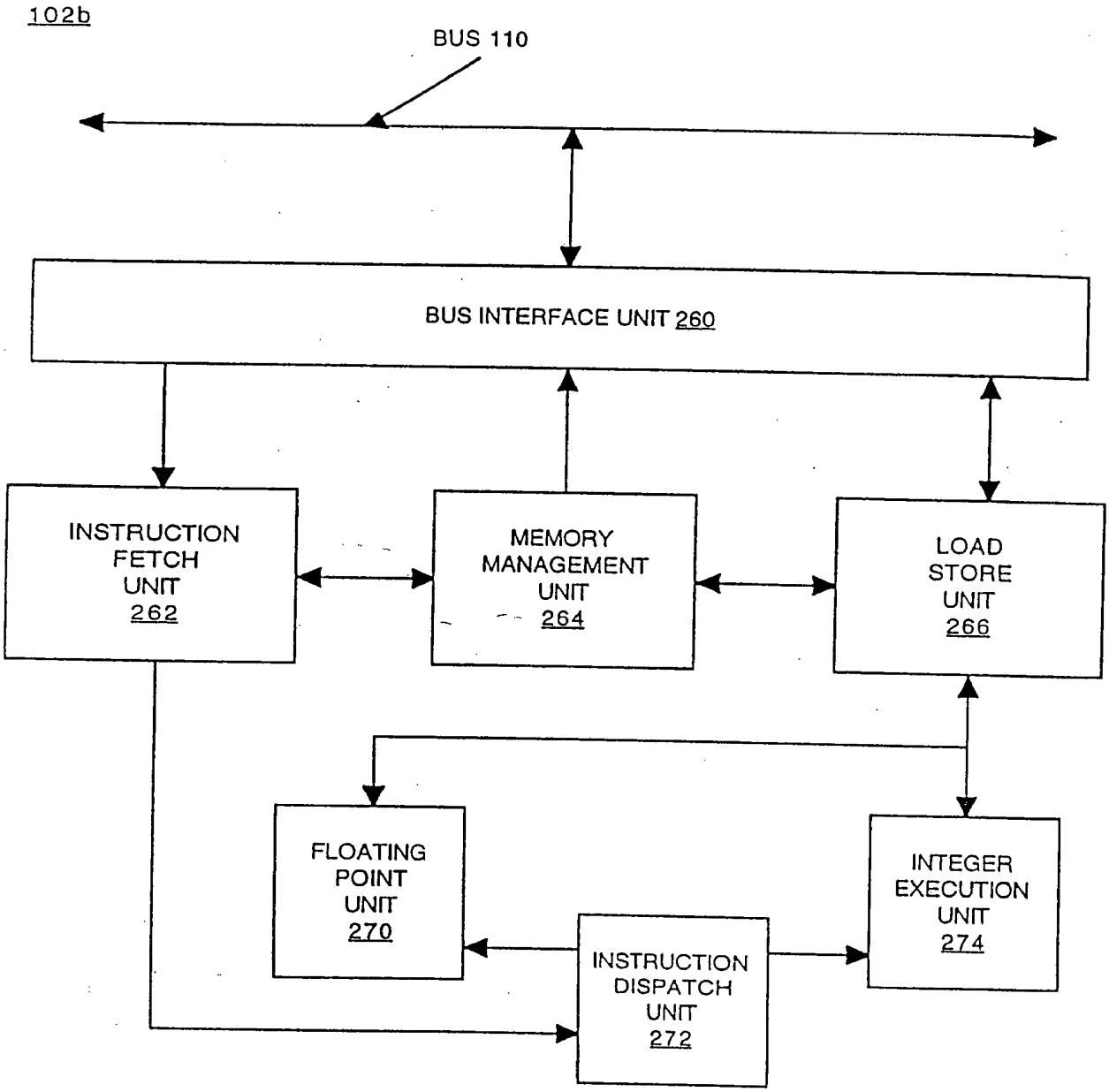


FIG.2B

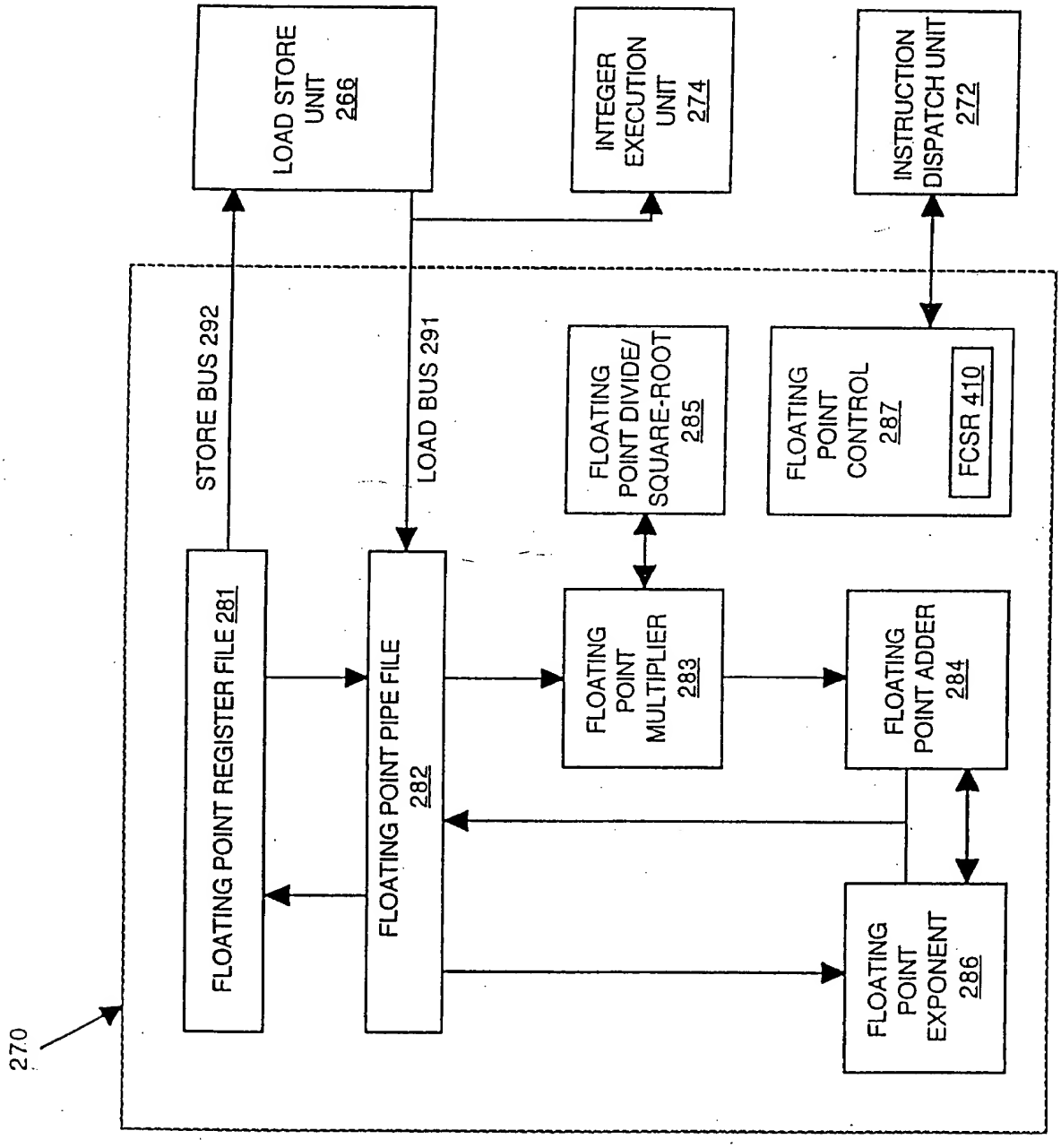


FIG.2C

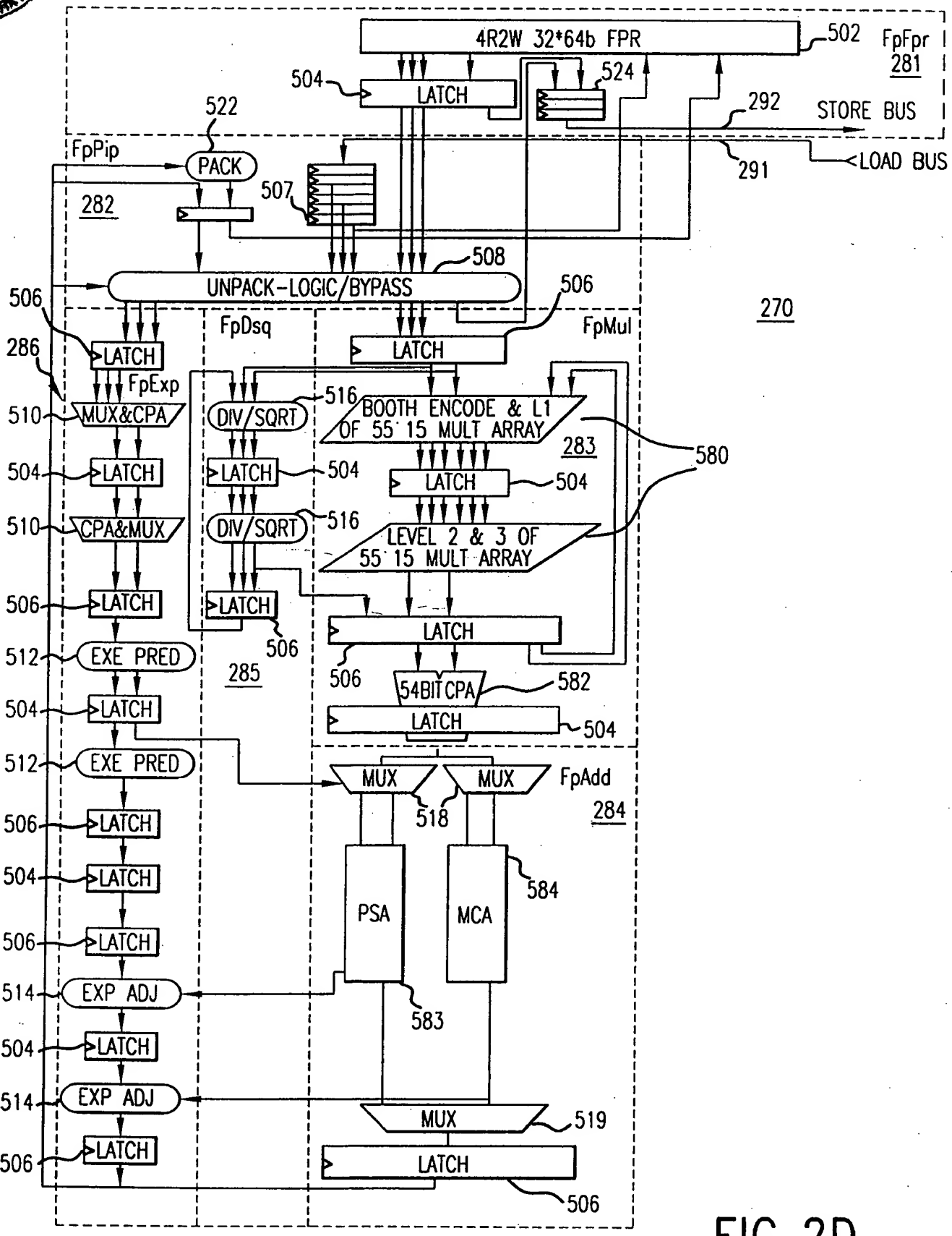


FIG. 2D

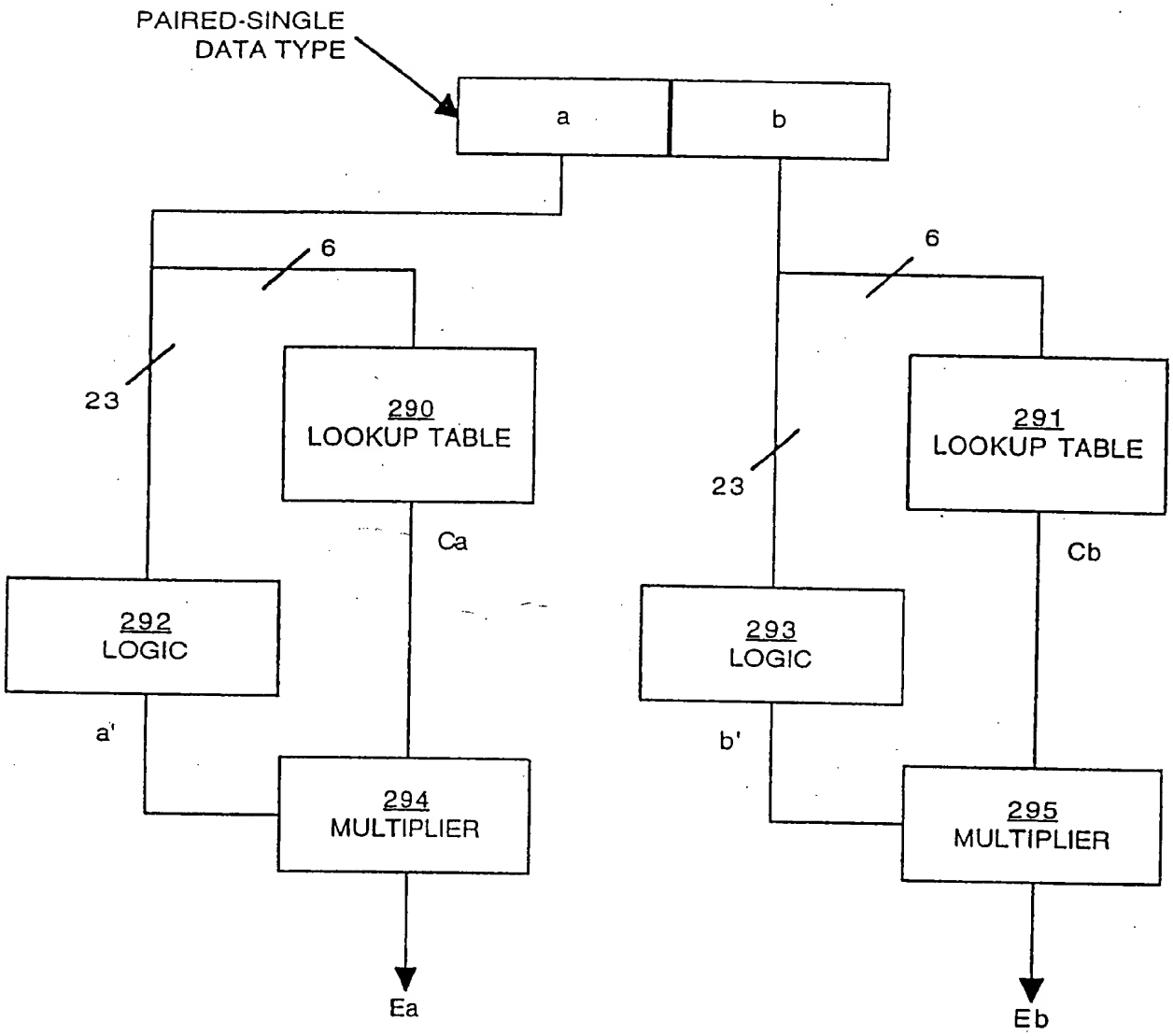


FIG.2E

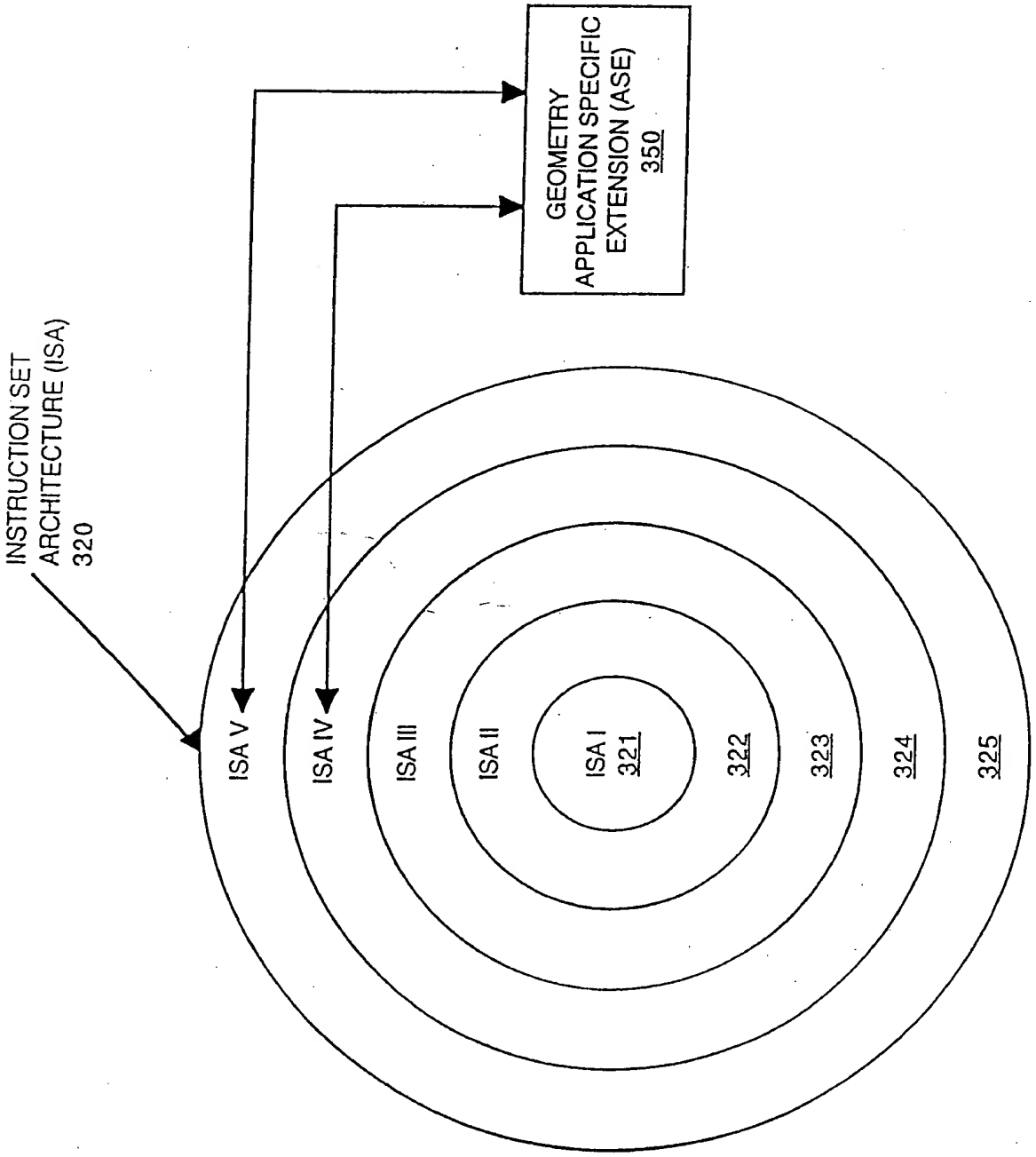


FIG.3

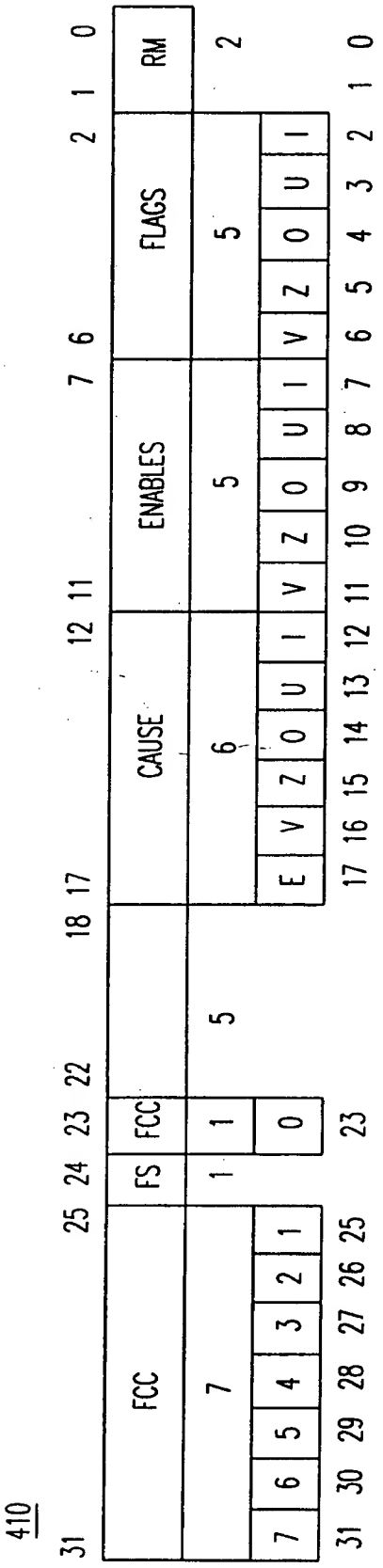


FIG.4

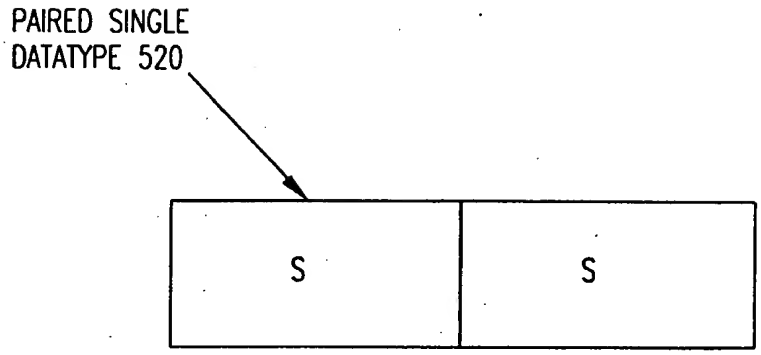
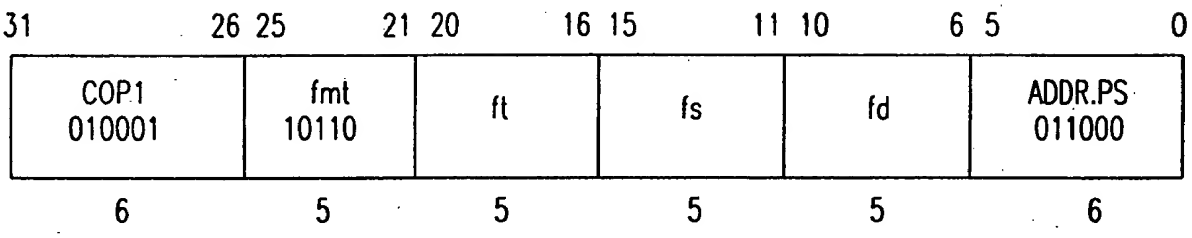


FIG.5

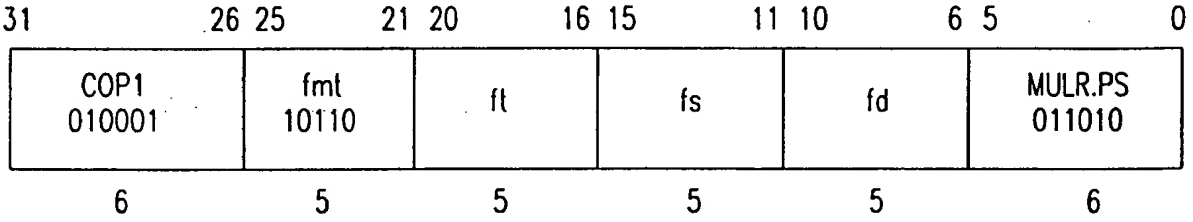
ADDR 601



FORMAT: ADDR.PS fd, fs, ft

FIG.6A

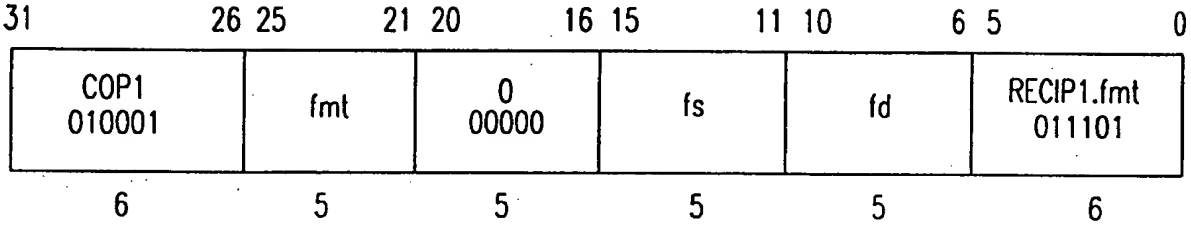
MULR 602



FORMAT: MULR.PS fd, fs, ft

FIG.6B

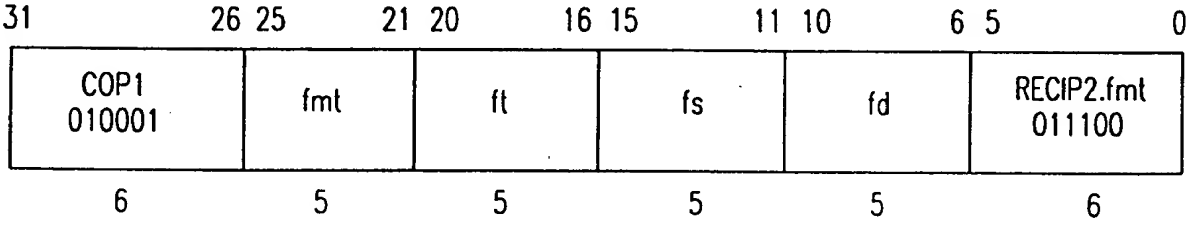
RECIP1 603



FORMAT: RECIP1.S fd, fs
RECIP1.D fd, fs
RECIP1.PS fd, fs

FIG.6C

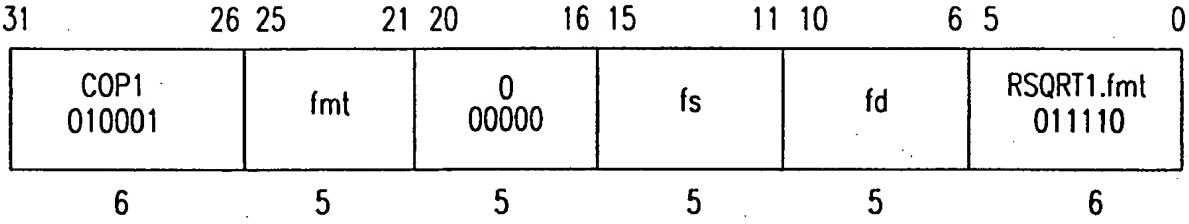
RECIP2 604



FORMAT: RECIP2.S fd, fs, ft
RECIP2.D fd, fs, ft
RECIP2.PS fd, fs, ft

FIG.6D

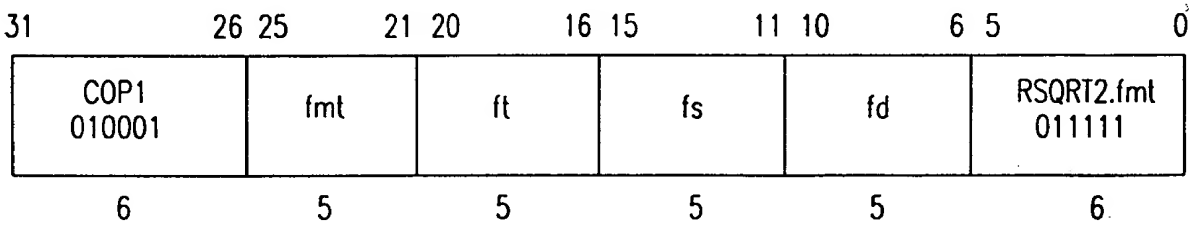
RSQRT1 605



FORMAT: RSQRT1.S fd, fs
RSQRT1.D fd, fs
RSQRT1.PS fd, fs

FIG.6E

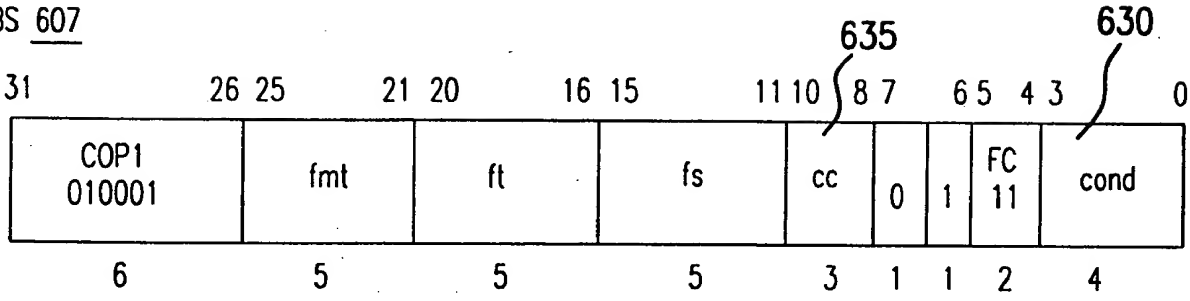
RSQRT2 606



FORMAT: RSQRT2.S fd, fs, ft
RSQRT2.D fd, fs, ft
RSQRT2.PS fd, fs, ft

FIG.6F

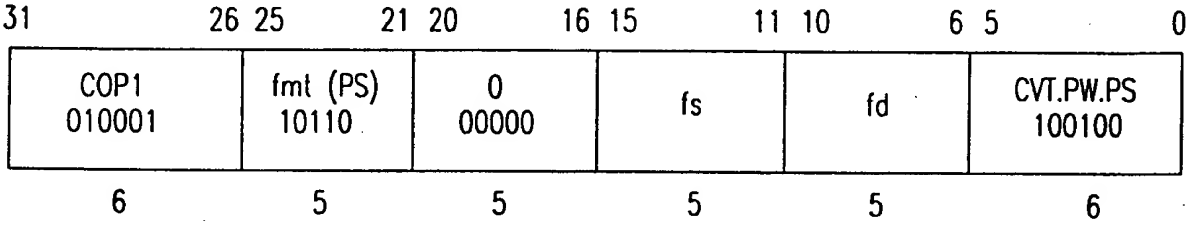
CABS 607



FORMAT: CABS.cond.S cc, fs, ft
CABS.cond.D cc, fs, ft
CABS.cond.PS cc, fs, ft

FIG.6G

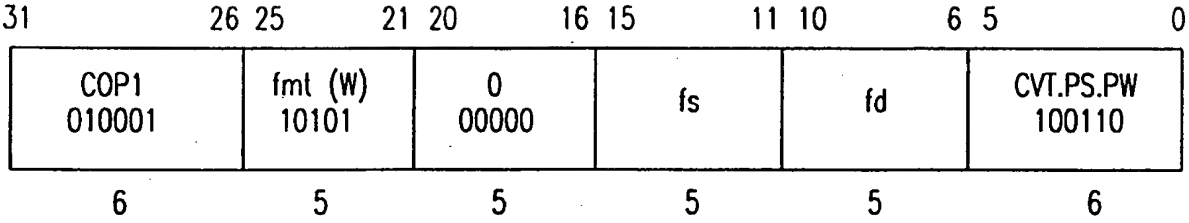
CVT.PW.PS 608



FORMAT: CVT.PW.PS fd, fs

FIG.6H

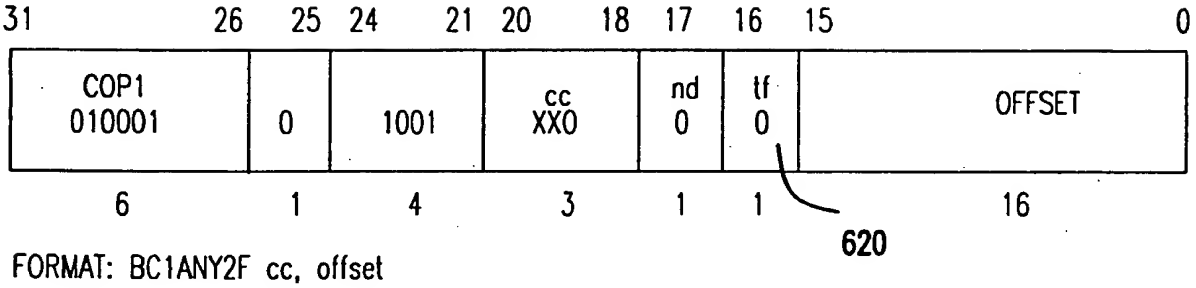
CVT.PS.PW 609



FORMAT: CVT.PS.PW fd, fs

FIG.6I

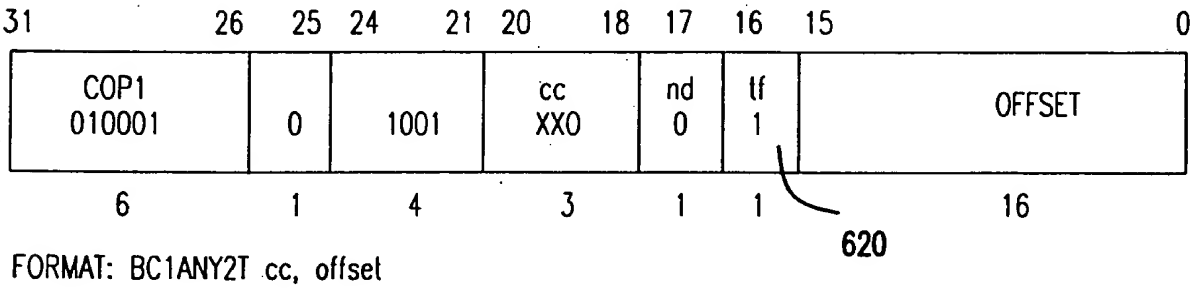
BC1ANY2F 610



FORMAT: BC1ANY2F cc, offset

FIG.6J

BC1ANY2T 611

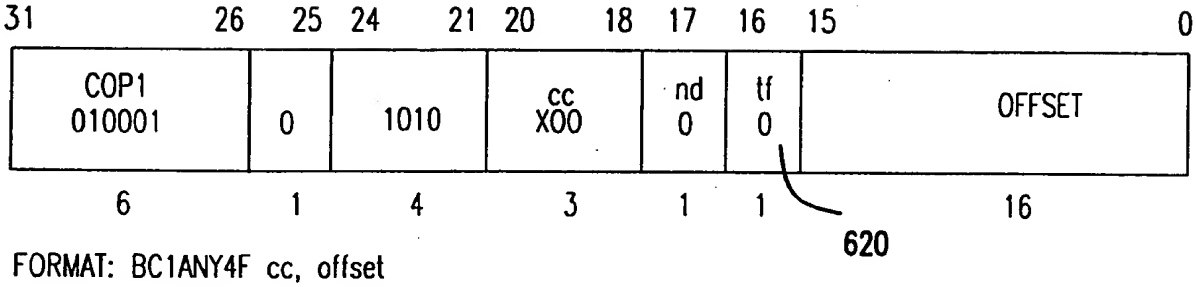


FORMAT: BC1ANY2T cc, offset

FIG.6K

16/23

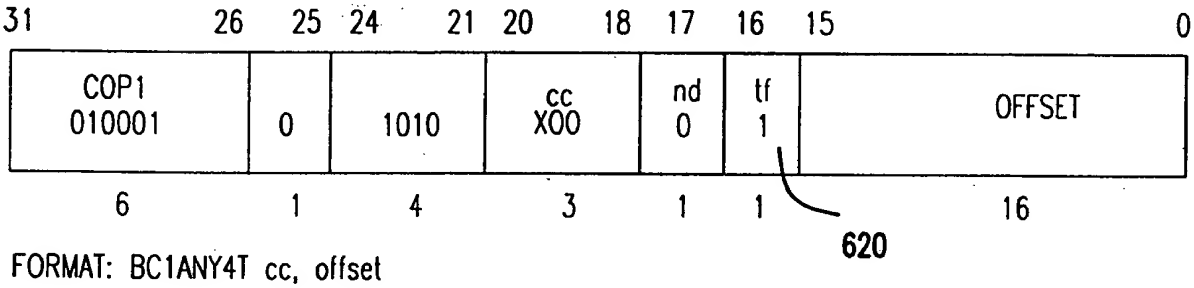
BC1ANY4F 612



FORMAT: BC1ANY4F cc, offset

FIG.6L

BC1ANY4T 613



FORMAT: BC1ANY4T cc, offset

FIG.6M

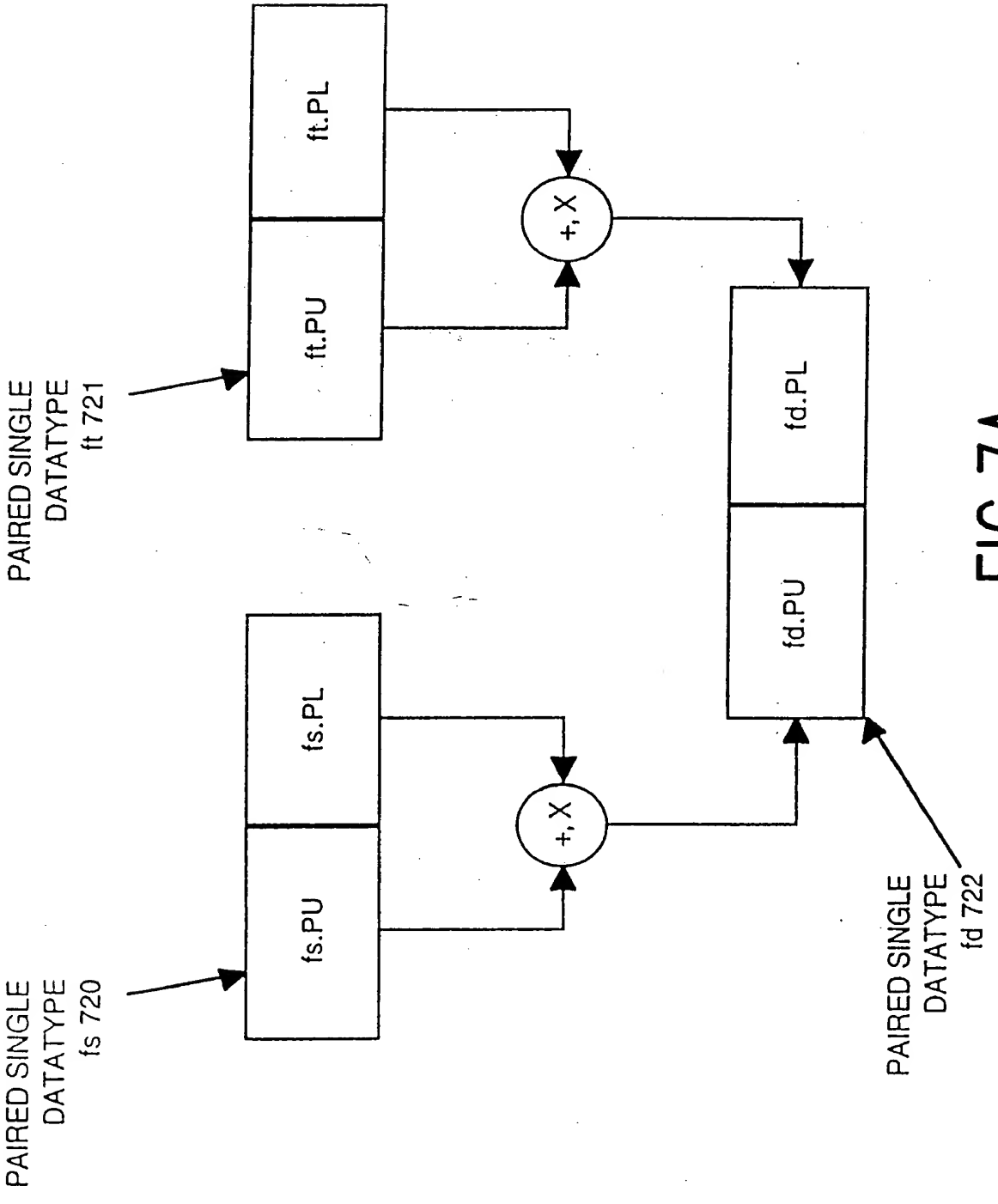


FIG.7A

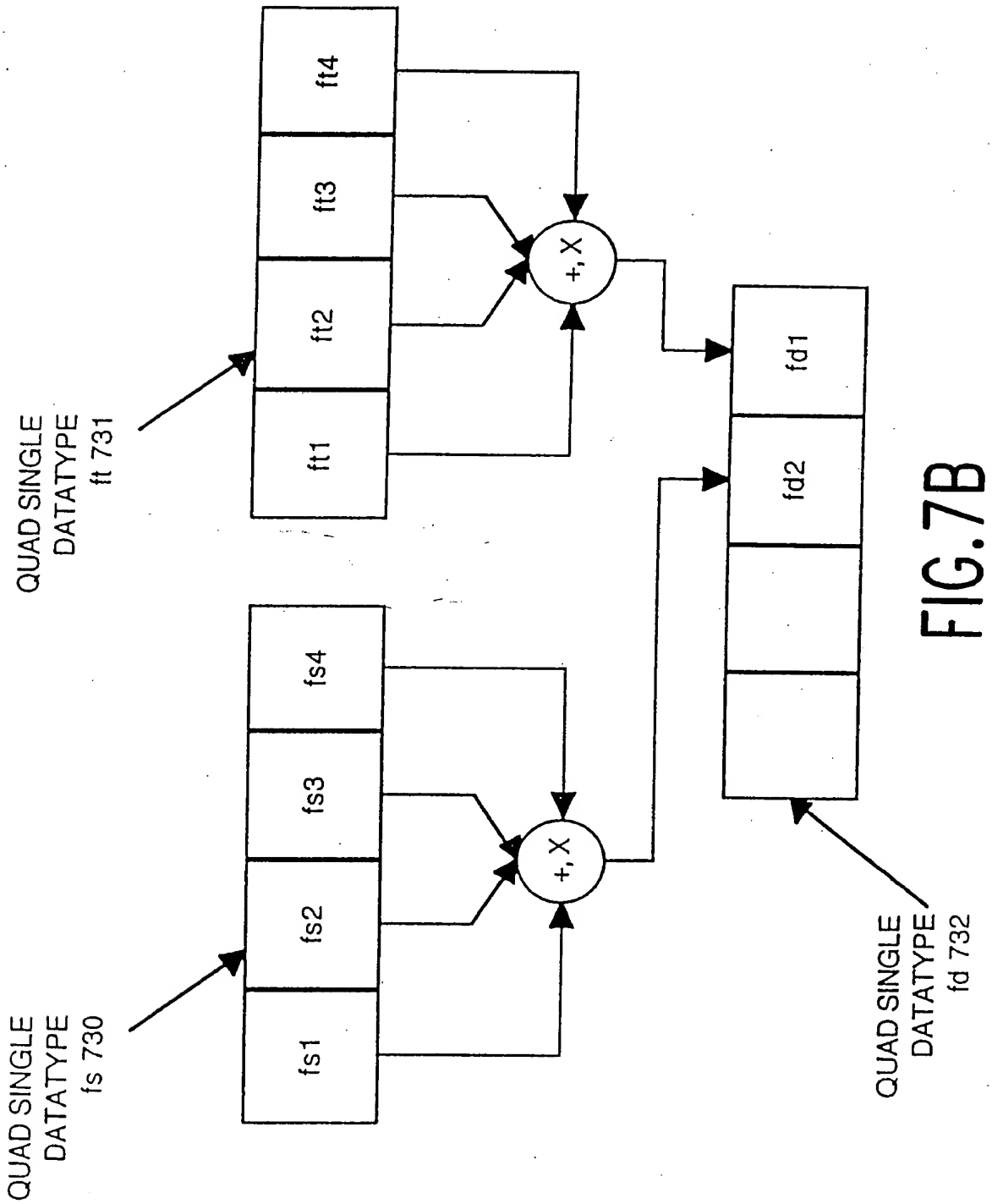
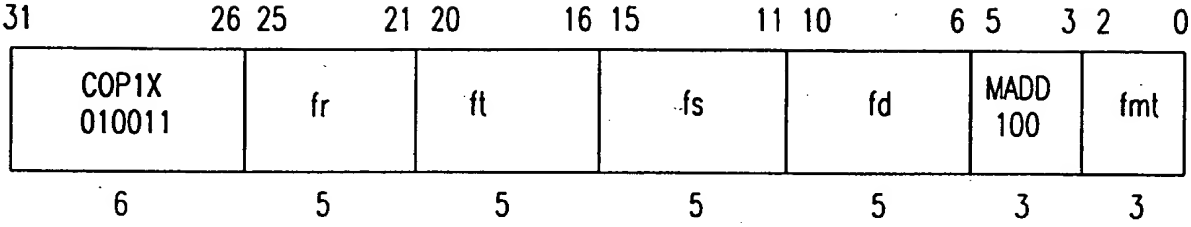


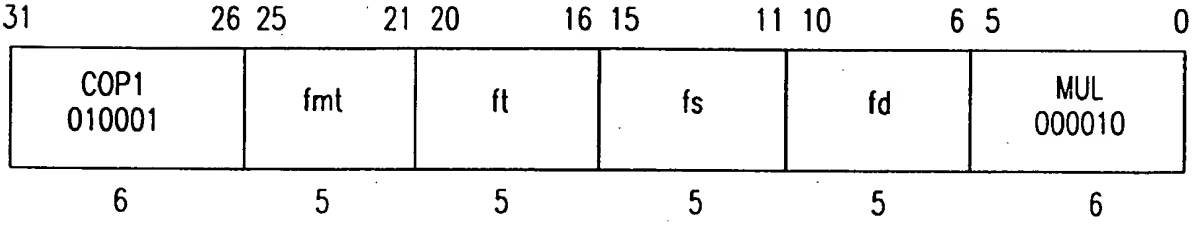
FIG. 7B

MADD 801



FORMAT: MADD.S fd, fr, fs, ft
MADD.D fd, fr, fs, ft
MADD.PS fd, fr, fs, ft

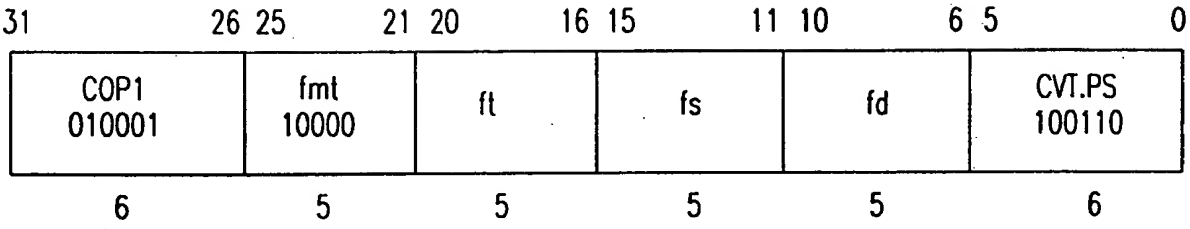
FIG.8



FORMAT: MUL.S fd, fs, ft
MUL.D fd, fs, ft
MUL.PS fd, fs, ft

FIG.9

CVT.PS.S 1001



FORMAT: CVT.PS.S fd, fs, ft

FIG.10

1000

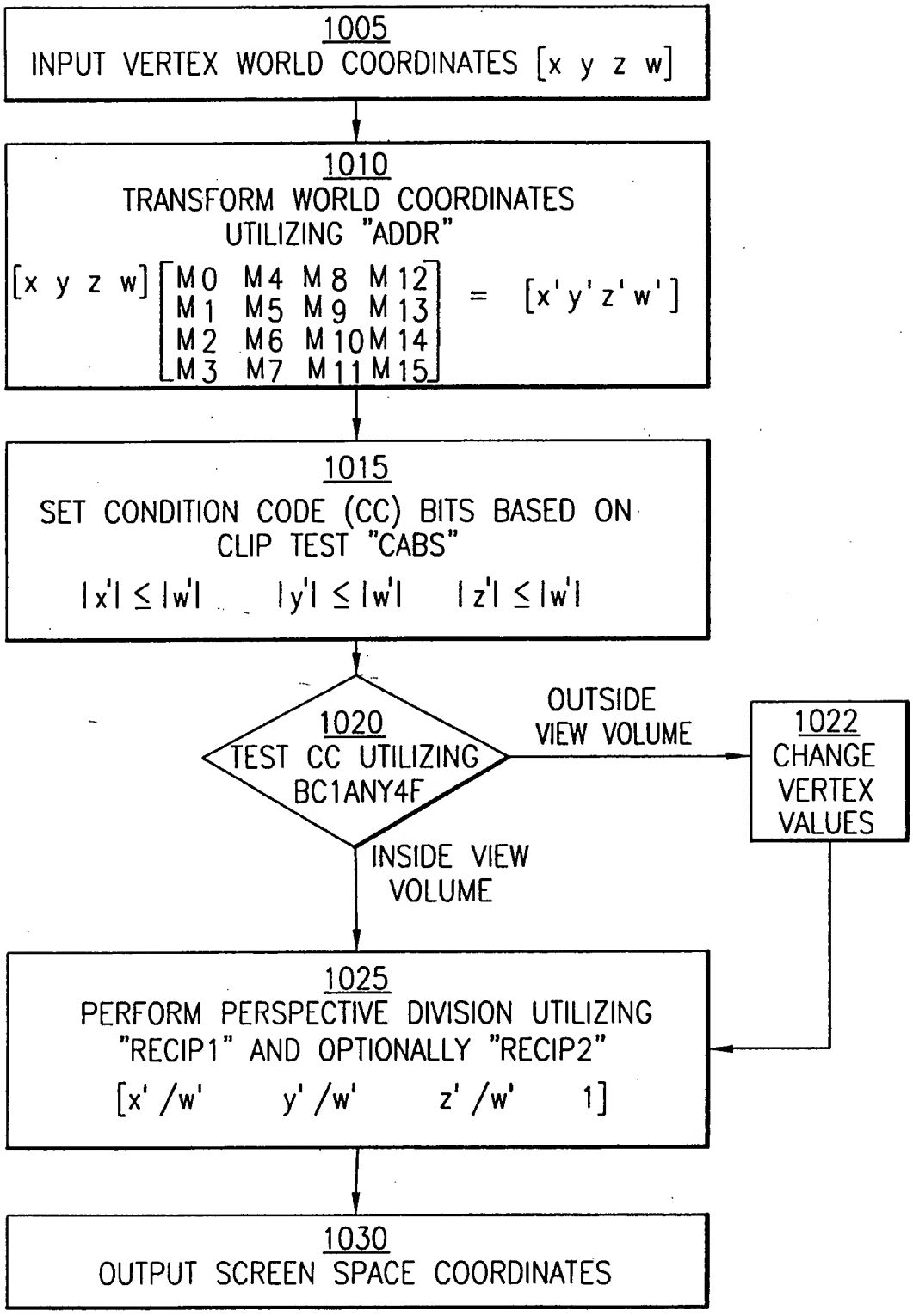


FIG. 11A

1100

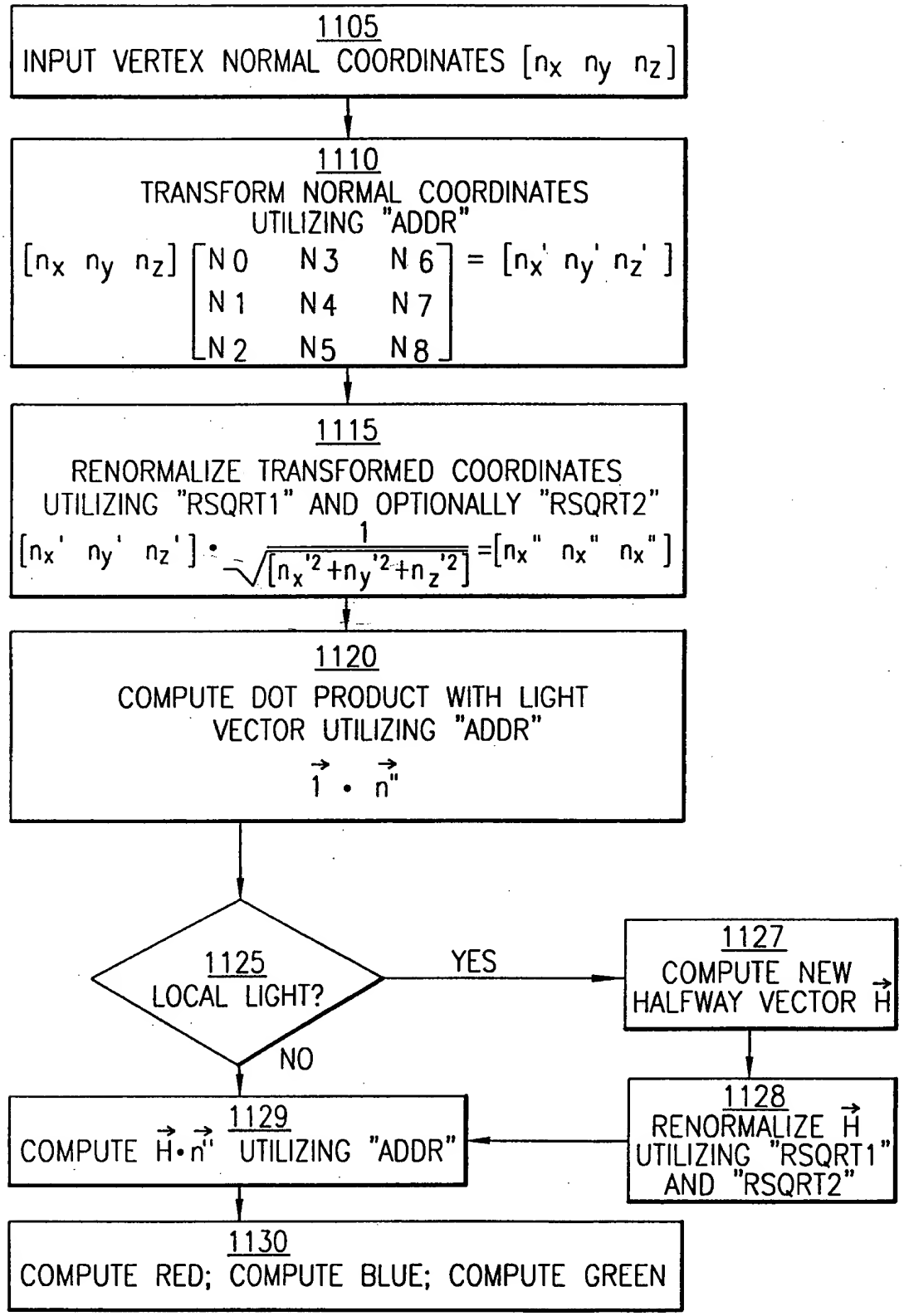


FIG. 11B

3D MATRIX TRANSFORM

$$[\,x, y, z, w\,] * \begin{bmatrix} M_0 & M_4 & M_8 & M_{12} \\ M_1 & M_5 & M_9 & M_{13} \\ M_2 & M_6 & M_{10} & M_{14} \\ M_3 & M_7 & M_{11} & M_{15} \end{bmatrix}$$

```
# fp0-fp7 CONTAIN THE 4x4 MATRIX IN PAIR SINGLE FORMAT
#BASE CONTAINS THE ADDRESS OF THE NEXT VECTOR AS TWO PAIR SINGLE VALUES
      1d        fp10, 0(base)          # fp10:  y || x
      1d        fp11, 8(base)          # fp11:  w || z
# fp10 AVAILABLE HERE ASSUMING L1 CACHE HIT. USE PREFETCH TO ACCOMPLISH THIS
      mul.ps fp14, fp10, fp4           # fp14:  M9y || M8x
      mul.ps fp15, fp10, fp6           # fp15:  M13y || M12x
      mul.ps fp12, fp10, fp0           # fp12:  M1y || M0x
      mul.ps fp13, fp10, fp2           # fp13:  M5y || M4x
# fp14 AVAILABLE HERE
      madd.ps fp14, fp14, fp11, fp5    # fp14:  M11w+M9y || M10z+M8x
      madd.ps fp15, fp15, fp11, fp7    # fp15:  M15w+M13y || M14z+M12x
      madd.ps fp12, fp12, fp11, fp1    # fp12:  M3w+M1y || M2z+M0x
      madd.ps fp13, fp13, fp11, fp3    # fp13:  M7w+M5y || M6z+M4x
      ssnop
# fp14, fp15 AVAILABLE HERE
      addr.ps fp11, fp15, fp14         # fp11:  w' || z'
                                       # fp11:  M15w+M14z+M13y+M12x || M11w+M10z+M9y+M8x
# fp12, fp13 AVAILABLE HERE
      addr.ps fp10, fp13, fp12         # fp10:  y' || x'
                                       # fp10:  M7w+M6z+M5y+M4x || M3w+M2z+M1y+M0x
```

FIG. 12